

# High Fidelity Airborne Imaging System for Remote Observation of Space Launch/Reentry Systems, Phase I

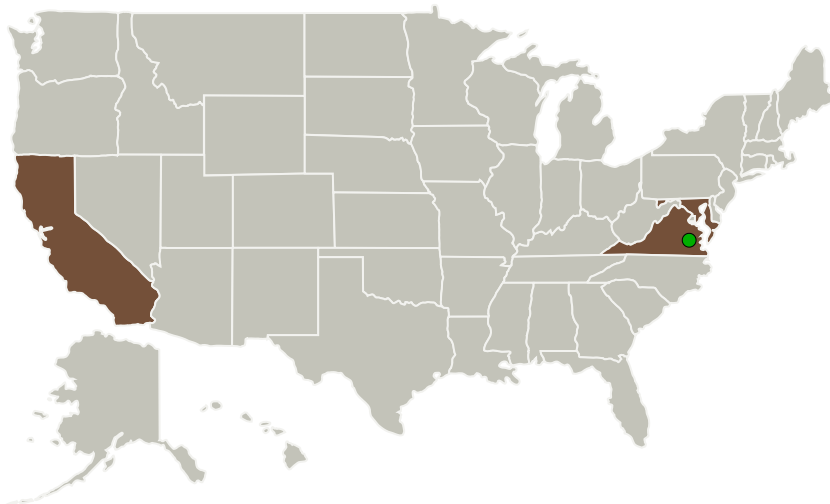
Completed Technology Project (2012 - 2013)



## Project Introduction

The utility of airborne remote observation of hypersonic reentry vehicles was demonstrated by the NASA Hypersonic Thermodynamic Infrared Measurement (HYTHIRM) project. High spatial resolution infrared imagery was collected using available technology manned aircraft. This IR imagery was used to infer surface temperature and boundary layer transition. To increase effectiveness of the data collection, an unmanned air vehicle (UAV) platform is desired. The ideal platform would entail a "smart sensor payload" with the UAV designed around it. Developing such a system will require technological advances in several disciplines. In Phase-I system performance requirements will be established based on desired science objectives. Current state of the art technology will be utilized to define a baseline UAV and assess technology gaps and areas where technological advancement is most effective. A light weight, narrow field of view multispectral / hyperspectral imaging system is a key area of where innovative development is required. A hardware / software flight demonstration will be designed for execution during Phase-II.

## Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Opto-Knowledge Systems, Inc.(OKSI)	Lead Organization	Industry	Torrance, California
Johns Hopkins University Applied Physics Laboratory(JHU/APL)	Supporting Organization	R&D Center	Laurel, Maryland
● Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

## Primary U.S. Work Locations

California	Maryland
Virginia	

## Project Transitions

▶ **February 2012:** Project Start

✓ **February 2013:** Closed out

### Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/138201>)

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Organization:

Opto-Knowledge Systems, Inc. (OKSI)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

Carlos Torrez

### Principal Investigator:

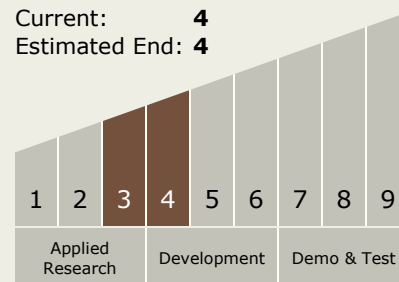
Gordon Scriven

## Technology Maturity (TRL)

Start: **3**

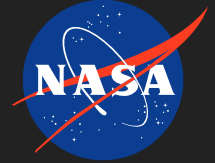
Current: **4**

Estimated End: **4**



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## Technology Areas

### Primary:

- TX08 Sensors and Instruments
  - └ TX08.1 Remote Sensing Instruments/Sensors
    - └ TX08.1.1 Detectors and Focal Planes

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System